



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,409	04/08/2004	Gregory J. May	200312860-1	7814
22879	7590	12/15/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/820,409

Applicant(s)

MAY, GREGORY J.

Examiner

Jeff Wollschlager

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 14, 2006 has been entered.

### ***Response to Amendment***

Applicant's amendment to the claims, filed November 14, 2006, has overcome the 35 U.S.C. 112, second paragraph rejection of claims 1 and 4-10.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ross (U.S. Patent 5,830,529; issued November 3, 1998).

Regarding claim 1, Ross teaches a method of forming identifiable structures with printed coatings within a three-dimensional multi-layered object (Figure 45A and 45B;

Art Unit: 1732

col. 1, lines 7-15 and 42-55; col. 78, lines 37-52; col. 80, lines 23-43; col. 81, lines 17-41) wherein the materials for forming the object are applied in a layer-by-layer fashion with ink-jet printing means (col. 1, lines 42-55; col. 2, lines 60-col. 3, line 7; Figures 5A, 43A, 45A and 45B) and wherein the coating is applied as visible and invisible substances at different levels on each material (col. 5, lines 1-16 and 38-63) and wherein the identifiable structure can be detected using a non-invasive dimensional imaging device (col. 23, lines 25-50).

As to claim 4, Ross exemplifies forming a plurality of identifiable structures within the object (Figure 45B).

As to claims 5 and 6, the identifiable structures formed by Ross may take the form of an x-ray transparent material or may be visible in other forms (col. 23, lines 25-50) including air or gas spaces where no coating exists.

As to claims 7 and 10, Ross teaches the identifiable structure within the three-dimensional object may include at least one air gap within the identifiable structure and includes structures such as numbers, symbols, indicia, barcodes, and shapes (col. 23, lines 25-50; Figure 45A and 45B; col. 81, lines 17-41).

As to claim 8, Ross teaches the imaging device for detection can include an x-ray, magnetic, or ultrasonic device (col. 23, lines 25-50).

As to claim 9, Ross teaches the coating material may include colorants (Abstract) and toner particles and particulates (col. 1, lines 42-55).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van der Zel (WO 02/085241; published October 31, 2002) in view of Jagmin (U.S. 5,044,955; issued September 3, 1991).

Regarding claim 1, Van der Zel teaches a method for producing an artificial tooth wherein he employs ink-jet printheads to apply iterative layers of ceramic and binder (page 26, line 33-page 27, line 21; Abstract; page 8, lines 21-33; page 9, line 37-page 10, line 2; page 16, line 19-page 17, line 18). The binder solution contains pigments and the composition of the materials can be changed at each print point to allow components with varied composition and microstructures to be produced wherein the completed design is executed with a computer aided manufacturing process (page 10, lines 33-37) and wherein the powder that does not have binder added to it remains to support the layers that will be printed above (page 28, line 9-page 29, line 4). Van der Zel does not expressly teach the pigment or the microstructures form an identifiable structure that can be detected using a non-invasive dimensional imaging device.

However, Jagmin teaches a method of providing a radiographically readable personal information code within a tooth (Abstract; Figure 1A, Figures 2-4; col. 4, lines 11-14; col. 5, lines 31-38).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to form radiopaque identifiable structures, such as those disclosed by Jagmin as part of the microstructures taught by Van der Zel for the purpose, as taught by Jagmin of creating an identifiable structure which is not plainly visible while improving the ability to identify missing persons, for example (Abstract) or for providing a means to identify the lot, batch, and serial number of the artificial tooth.

As to claims 4-6, Jagmin (Figure 1 and Figure 2; col. 4, line 11-41) teaches a plurality of identifiable structures are formed and that the identifiable structures are fabricated from either the broadly defined build materials or contrast enhancing materials.

As to claim 7, Jagmin teaches the identifiable structure forms a combination of a contrast enhancing material and a gap to form a letter (Figure 1 and 2), bar code characters, or binary code characters (col. 5, lines 31-38).

As to claim 8, the identifiable structure disclosed by Jagmin is visible to an x-ray device (col. 2, lines 55-66)

As to claim 9, Van der Zel employs pigmented binders (page 9, line 37-page 10, line 2) and microparticles of ceramic ink (page 27, line 21-page 28, line 9). Additionally, Jagmin teaches the color of the radiolucent material is selected to match the tooth (col. 2, line 65-col. 3, line 1).

As to claim 10, Jagmin teaches the identifiable structure is a letter, bar code, characters, or binary code characters (col. 5, lines 31-38).

***Response to Arguments***

Applicant's arguments filed November 14, 2006 regarding the Monkhouse et al. (U.S. Patent 6,547,994) reference have been fully considered and are persuasive.

***Conclusion***

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager  
Examiner  
Art Unit 1732

December 11, 2006

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER

12/11/06